



520 Tolling Implementation Committee

Washington State Transportation Commission

Tuesday February 17, 2009

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Communications, Urban Corridors Office,
WSDOT**

Staff to the Tolling Implementation Committee

Committee members



Bob Drewel, Chair

Puget Sound
Regional Council



Paula Hammond

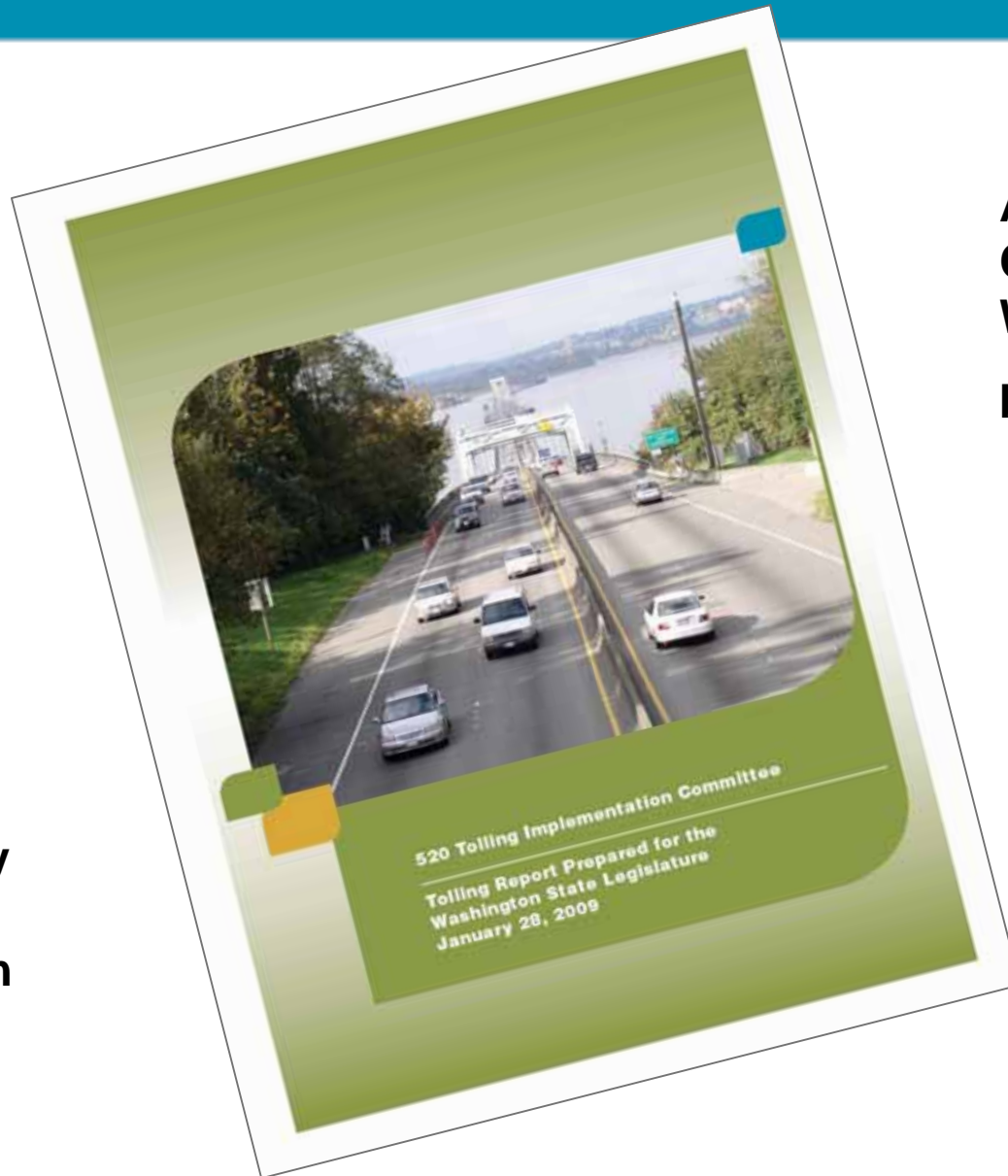
Washington State
Department of
Transportation
Secretary



Dick Ford

Washington State
Transportation
Commission

520 Tolling Implementation Committee report



**Available on
Committee
Website**

build520.org

**Approved by
Committee
January 28th**

520 Tolling Implementation Committee charge

- Evaluate
 - Traffic diversion from 520 to other routes, including 522, and recommend mitigation
 - Advanced tolling technology
 - New applications of emerging technology to better manage traffic
- Explore opportunities to partner with the business community to reduce congestion and contribute financially
- Confer with mayors and city councils
- Conduct public work sessions and open houses to solicit citizen views on tolling the existing 520 bridge, tolling both 90 and 520, providing incentives for transit and carpooling, implementing variable tolling
- Provide a report to the governor and legislature in January 2009

Committee charge - engagement

Engage citizens on the following topics:

- Funding a portion of the 520 replacement project with tolls on the existing bridge
- Funding the 520 replacement project and improvements on the 90 Bridge with a toll paid by drivers on both bridges
- Providing incentives and choices for transit and carpooling
- Implementing variable tolling as a way to reduce congestion

Overview of ten scenarios

1	Toll 520 in 2016, when project is complete	520-Only
2	Toll 520 in 2010, when construction begins	
5	Flat rate toll on 520 (in 2016)	
6	Maximize funding by tolling only 520	
7	Toll 520 in 2010; increase rate in 2016	
3	Toll both bridges in 2016	Two-Bridge (520 & I-90)
4	Toll 520 in 2010 and 90 in 2016	
8	Toll 520 at a higher rate than 90 in 2016	
9	Toll both bridges in 2010	
10	Full bridge toll on 520; HOT lanes on I-90	

What evaluation criteria are being considered?

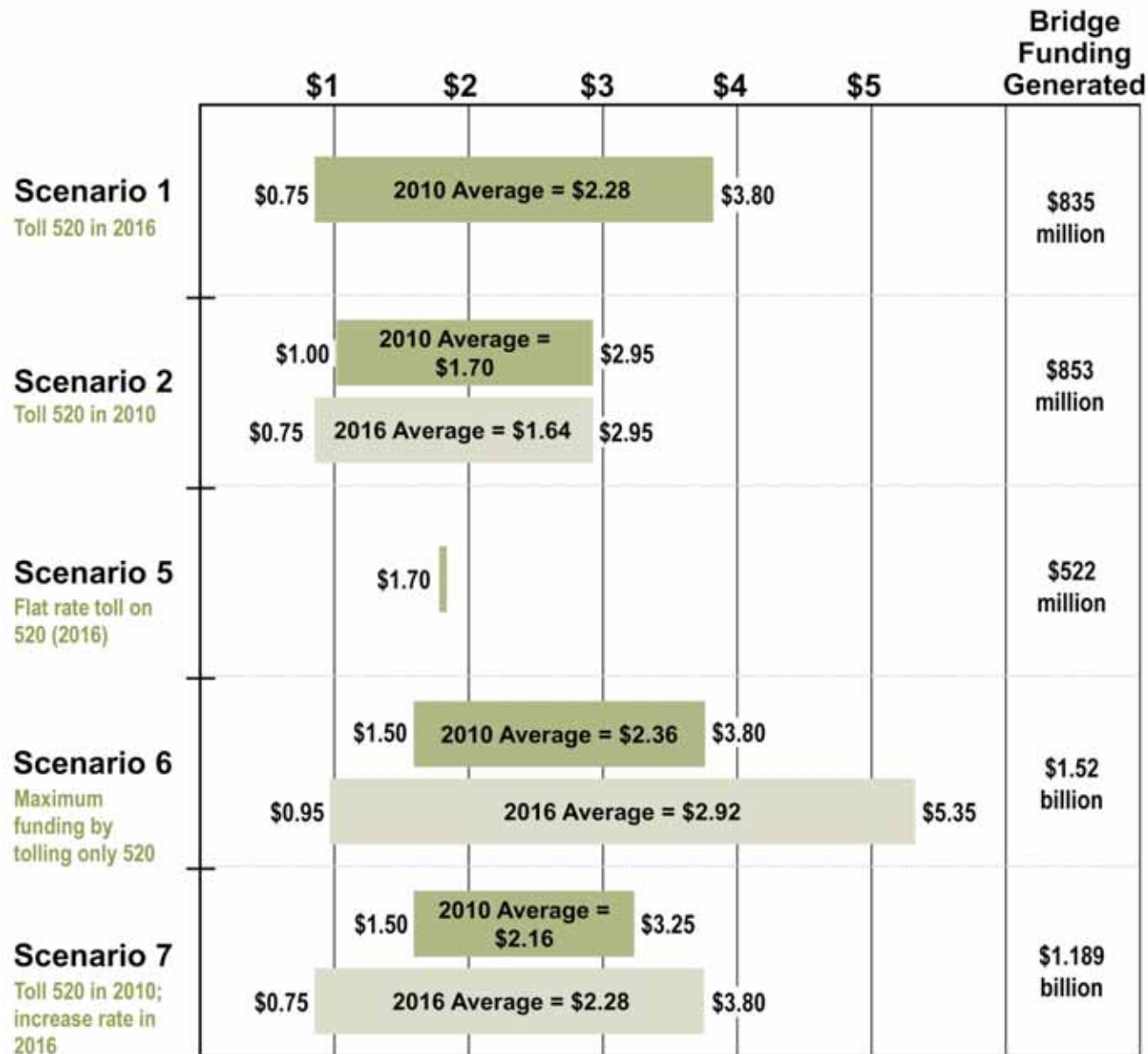
- The “reasonableness” of the tolls
- How much bridge funding is generated
- The diversion effects of tolls – people can choose to:
 - Stay on 520 but switch to carpool or transit
 - Stay on 520 but switch to different times
 - Travel on different routes
 - Choose a different destination – don’t have to cross the lake
- The performance of the bridge (potential congestion relief)
- The impacts tolls may have on low income bridge users

Examples of variable toll ranges evaluated

Time of Day	Range of Tolls Evaluated (2007\$)
Morning Commute (5 AM – 9 AM)	\$2.15 - \$4.25
Mid-Day (9 AM – 3 PM)	\$1.05 - \$2.75
Afternoon Commute (3 PM – 7 PM)	\$2.80 - \$5.35
Evening (7 PM -10 PM)	\$1.00 - \$2.60
Overnight (10 PM – 5 AM)	\$0.00 – \$0.90
Weekend	\$0.80 - \$1.60

Note: Tolls assumed to increase at rate of inflation

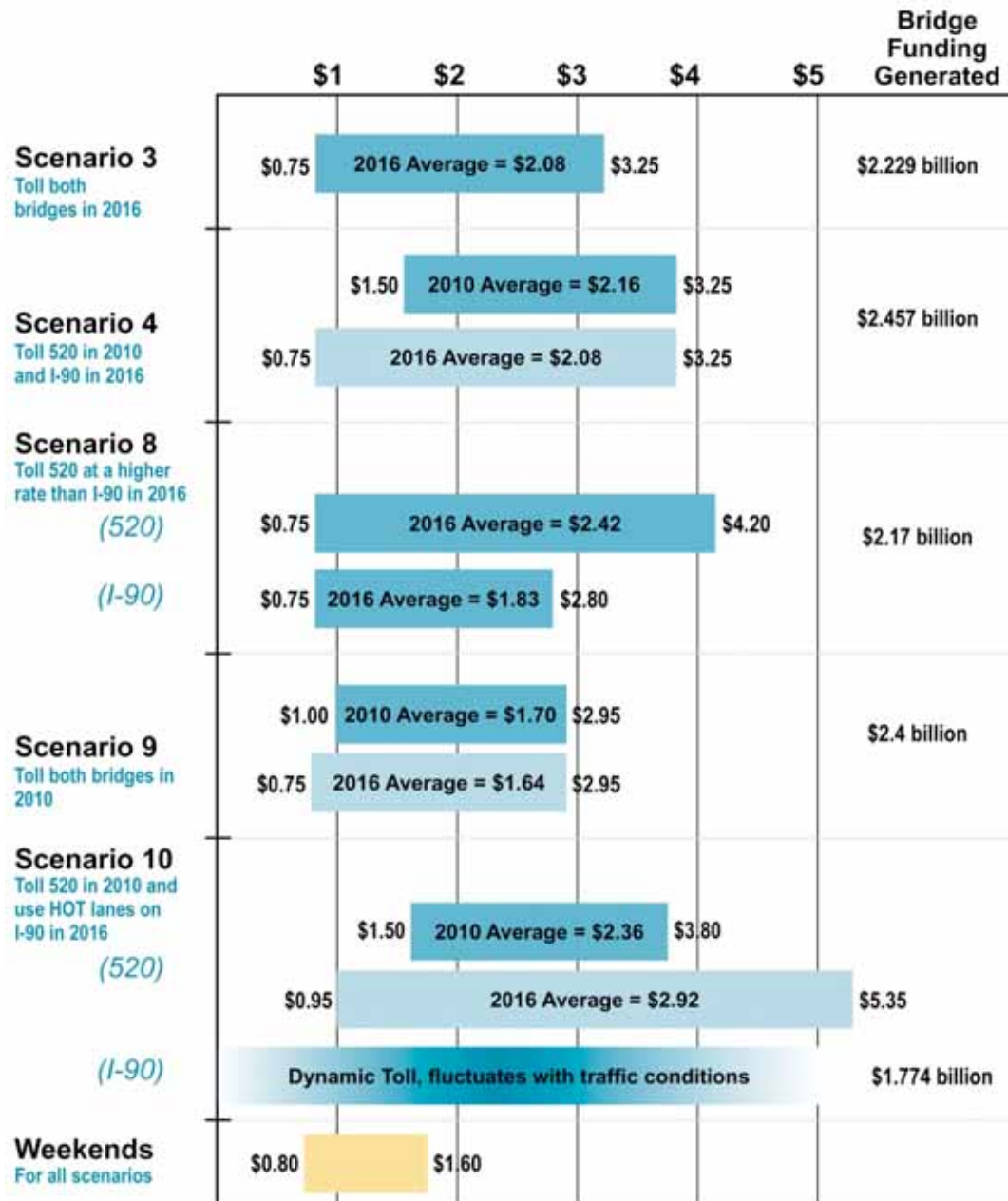
Toll ranges for 520-only scenarios (2007\$)



Notes:

- All toll rates are one-way
- All tolls are 2007\$
- 2010 scenarios do not charge an overnight toll.

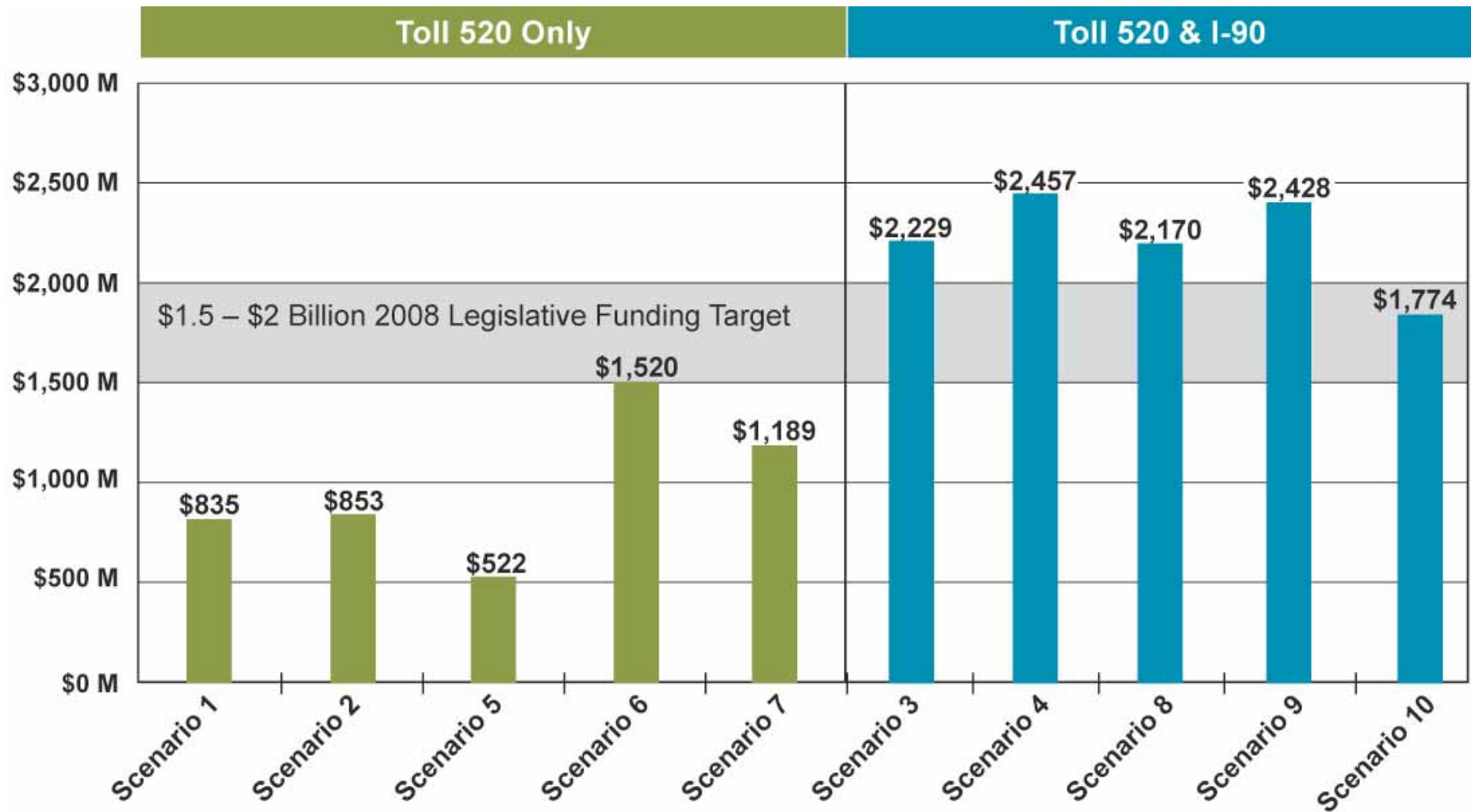
Toll ranges for two-bridge (520 & I-90) scenarios



Notes:

- All toll rates are one-way
- All tolls are 2007\$
- 2010 scenarios do not charge an overnight toll.

Bridge funding raised from toll scenarios

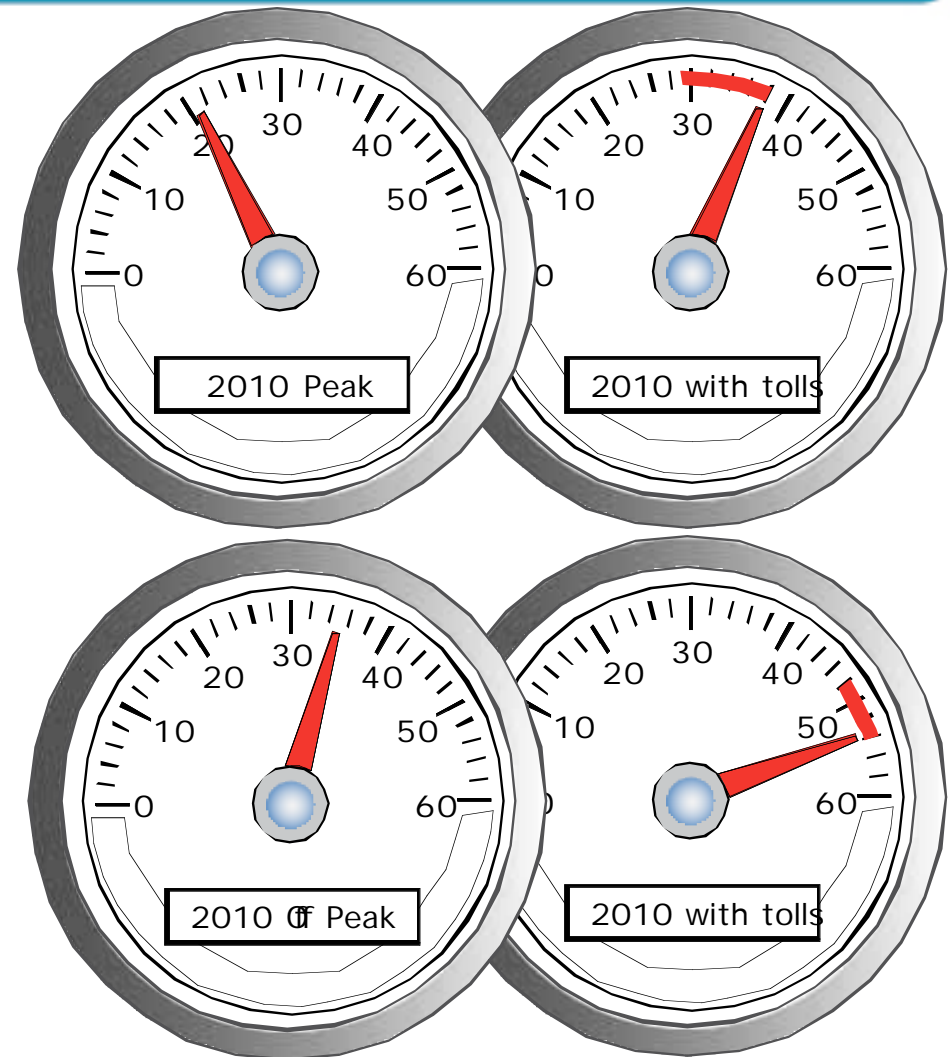


Big picture observations of the evaluation

- **When tolls are in place, speeds improve**
- **Tolling starting in 2010 improves traffic flow on the 520 bridge**
- **Four types of diversion—choose a different route, a different time, a different mode, a different destination**
- **People may change their routes, but the net effect is distributed across the system and no one route is degraded highly**
- **Tolling 520 in 2010 raises more funds and should reduce cost of borrowing over tolling 520 in 2016**
- **The most a single-bridge scenario raised was \$1.5 billion. Scenarios that toll both 520 and I-90 exceeded that amount**

When tolls are in place, speeds improve

- On 520, up to 40% increase in speeds
- The only time speeds decrease on I-90 by more than 5 mph is under the highest toll scenario for 520.
- With two-bridge scenarios (520 & 90), speeds increase on both bridges (in peak and off-peak times)
- On 522 and 405, speeds never decrease by more than 3 mph

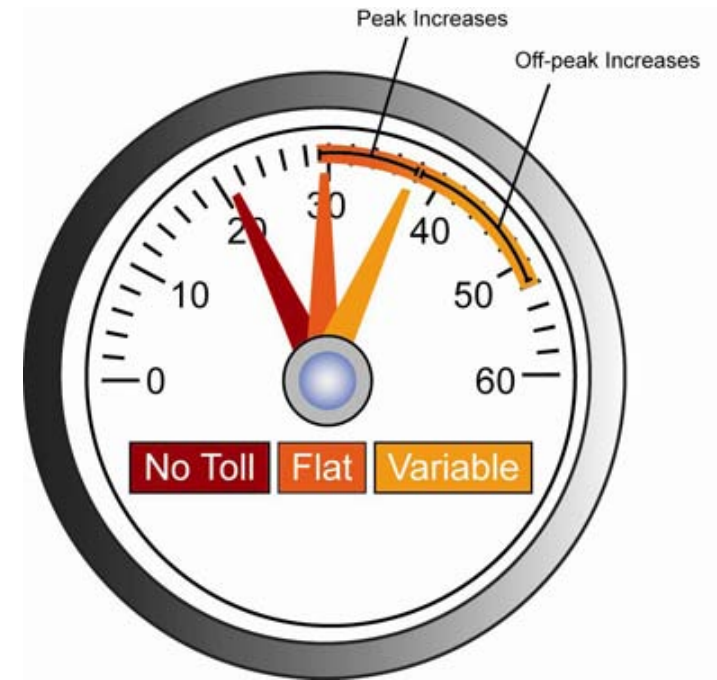


Examples: 520 bridge speed ranges in 2010; speeds with tolls, compared to roadway speed without tolls

Tolling improves traffic flow on the 520 bridge

On average, variable tolling leads to higher speeds from I-5 to 405:

- Speeds increase on average from 10 to 30 mph.
- By charging higher tolls during the busiest times, travel speeds increase about 13 to 16 mph over 2010 without tolls
- Off peak speeds increase between 13 and 19 mph
- With flat rate tolls, 520 speeds improve 7 mph in the peak and 16 mph in the off-peak.



520 bridge speed ranges, comparing no toll, flat toll and variable tolls in peak times in 2010. Off-peak speed increases could be up to 30 mph.

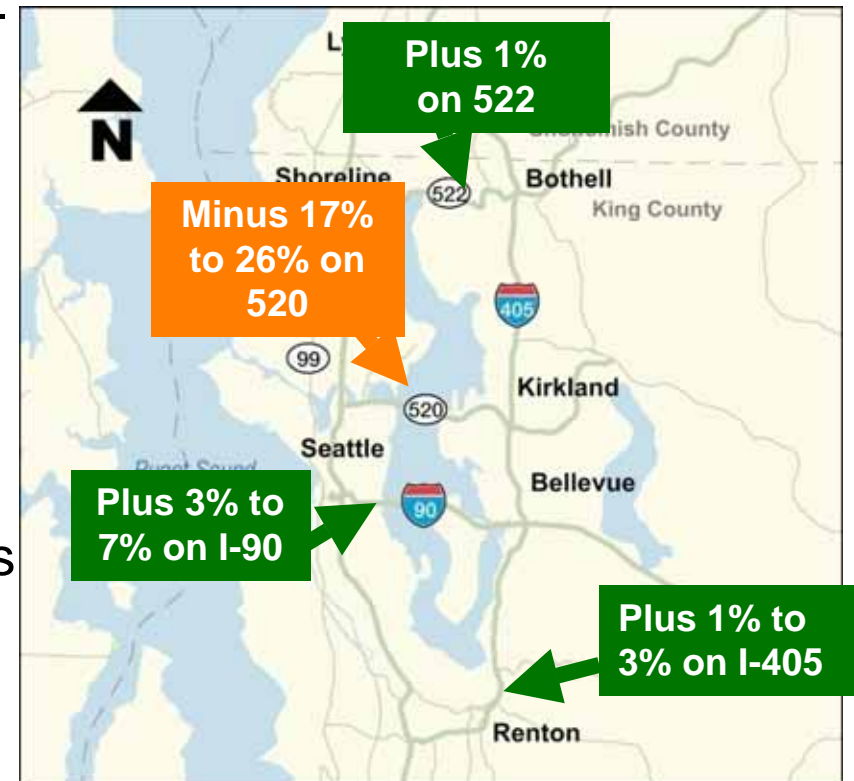
Route diversion – people may change their travel routes, but net effect is distributed across the system

520-only –

- Peak period traffic on I-90 increases less than 5%, except in highest toll one-bridge scenario (8%)
- Peak period traffic on SR 522 (at 61st/Kenmore) increases no more than 5%
- Peak period traffic on I-405 (at SR 167) increases no more than 3%
- Local roadways leading to tolled bridges have less traffic when tolls are in place
- System-wide congestion makes alternative routes less attractive

Examples of traffic diversion when tolling 520

(2010, Scenario 7: Toll 520 in 2010, increase rate in 2016)



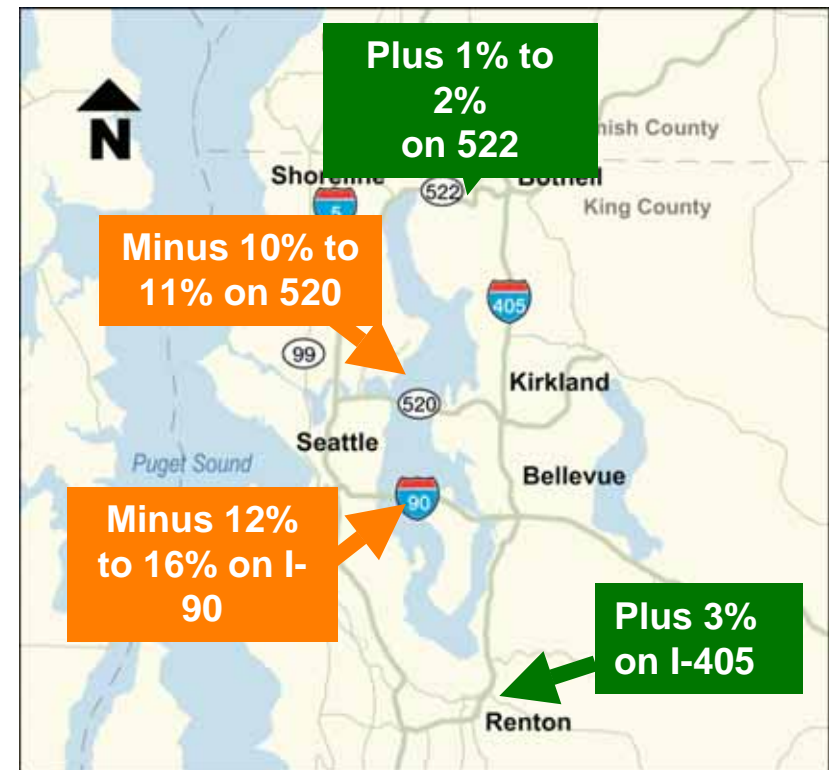
Route diversion – people may change their travel routes, but net effect is distributed across the system

Two-bridge (520 & 90) –

- Peak period traffic on 522 (at 61st/Kenmore) increases no more than 5%
- Peak period diversion to I-405 (at Renton) is greater in two-bridge scenarios, with volume increases reaching 8%.
- Local roadways leading to tolled bridges have less traffic when tolls are in place
- System-wide congestion makes alternative routes less attractive

Example of traffic diversion when tolling both 520 and 90

(2016, Scenario 9: Toll both bridges in 2016)



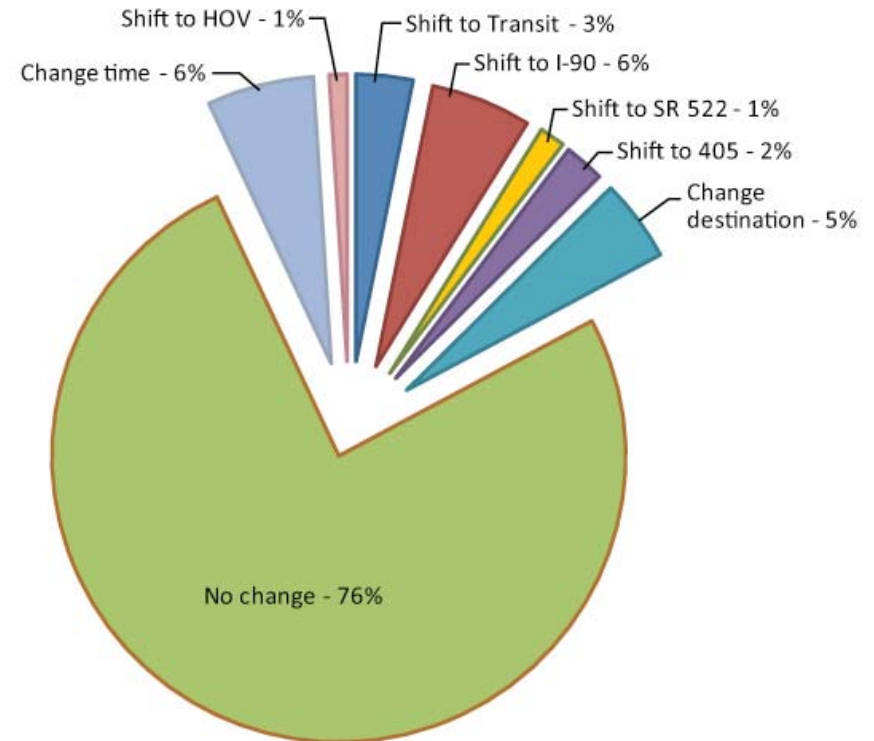
Some people make different choices – take transit, shift time of day or change destination

- Tolling 520 leads to a 15-35% increase in transit ridership in peak periods on 520 in 2010, provided the service is in place.
- The percentage of people who choose to travel at a different time of day ranges between 3-11% in 2010, and between 2-9% in 2016.



Some people make different choices – take transit, shift time of day or change destination

- Overall, under one-bridge scenarios, 0-15% change their destination.
- Overall, Under two-bridge scenarios, 5-10% change their destination.
- When tolls are at their highest, changing destination is also its highest (15 to 20% at off-peak).



Total Diversion under Scenario 6: Maximize funding by tolling only 520. 82% of person volume stay on 520 based on 2010 baseline 520 volume.

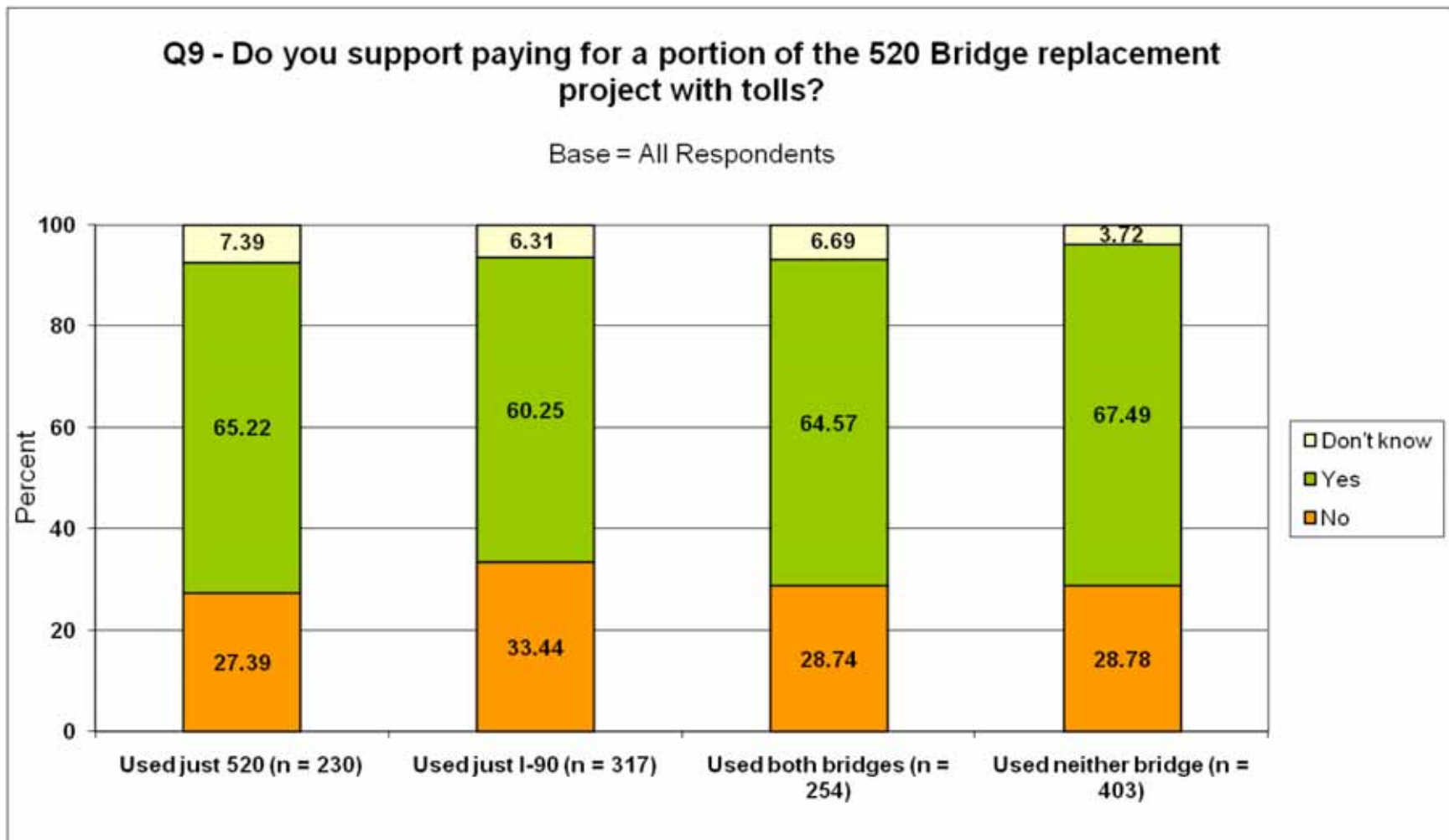
Public engagement

- **16,000 build520.org Website visitors**
- **7,800 web survey participants**
- **1,200 phone survey respondents**
- **8,000 written comments**
- **700 open house attendees**
- **1,000+ Sierra Club postcards**
- **3,300+ No Toll on I-90 petition signatures**



Random-sample phone survey

Support for Tolling the 520 Bridge



Key findings from phone survey

- **Support for tolling as a way to help fund the bridge replacement program**
- **Support for the idea of variable tolling in which tolls vary by time of day**
- **Support for full electronic tolling with transponders and no toll booths**
- **Support for tolling the existing 520 bridge in 2010 when construction begins**
- **Majority support for tolling I-90 in addition to 520, but strong opposition from I-90 users**

Comments from local jurisdictions

Comments from Local Jurisdictions

This chart highlights city and county comments regarding tolling 520 and/or I-90, as well as their concerns about potential diversion. It should be noted that nearly all cities had comments beyond diversion and mitigation issues, which provided meaningful comments and input. Among the common issues was opposition to "segment" tolls – tolls collected on the highways leading to the bridge – because of the potential for greater diversion to local streets and arterials. All letters are included in Appendix I.

Figure 4. Local jurisdictional comments

Jurisdiction/ Agency	Toll 520 in 2010	Toll I-90	Diversion	Mitigation ideas and other comments
Town of Beaux Arts Village (Town Council)				Toll 520 and I-90 at the same time; toll revenue should be used for capital improvements in the corridor, operations and maintenance and for early mitigation of impacts to local roadways; don't use toll revenues for transit
City of Bellevue (Mayor)	Support only if it allows early completion of project, and provides a lower toll for users	Prefer tolling only 520; if more funds needed, seek other state or federal sources; toll I-90 only when I-8A improvements are in place, and at a lower rate than 520	Minimize diversion to local roadways	
City of Bothell (Council and Mayor)			Concern about 522 and neighborhood streets	Improve transit service and capacity; improve park-and-ride facilities; add capacity to 522; use toll revenues for mitigation; concern about potential for hazardous materials to move through city streets; seek \$20 million commitment to assist with 522 corridor improvements; want 100th Ave and Juanita Drive added to traffic monitoring; want variable message signs and EIS for tolling
City of Clyde Hill; Town of Hunts Point; City of Medina; Town of Yarrow Point (Mayors)	Support	Support	Concern about diversion to local roadways	Toll revenue should be used for capital improvements in the corridor, operations and maintenance and for early mitigation of impacts to local roadways; don't use toll revenues for transit

Figure 4. Local jurisdictional comments

Jurisdiction/ Agency	Toll 520 in 2010	Toll I-90	Diversion	Mitigation ideas and other comments
City of Issaquah (Council)	Support	Maintain a free or low cost option on I-90; consider HOT lane; toll only after diversion to I-405 is mitigated	Concerns about I-405 diversion	Want transit improvements at I-90/I-18; efficient toll collection system and good public education are important
City of Kirkland (Council)	Support	Support		Reasonable uses of toll revenue include: construction and transit service on tolled route or parallel facilities; mitigation of diversion; operations and maintenance of tolled facilities; tolls should not replace current revenue sources; concern about needs of lower-income drivers
Mercer Island School District (Superintendent)		Oppose; or provide a free option		53 percent of employees commute eastbound; 47 percent commute westbound on I-90
City of Mercer Island (Council and Mayor)	Support tolls at a low rate to discourage diversion to I-90	Oppose tolls on travel to and from Mercer Island on I-90; the only access route to and from Mercer Island		Highlights city's rights according to I-90 Memorandum of Agreement; does not want traffic to or from Mercer Island to be tolled; desires mitigation if access is decreased; wants tolls to be used on facility where collected; analyze tolling I-405 and I-5; wants financial information on revenues collected if Mercer Island traffic is not tolled; says exempting Mercer Island traffic from tolls does not diminish capacity to fund 520
Mayors of Cities of Lake Forest Park, Kenmore, Woodinville and King County Councilmember Bob Ferguson			Concern about diversion to 522	Improve transit capacity and transit service; add park-and-ride; add capacity to 522, 202, and Woodinville-Duvall Road; use toll revenues to fund transit

Recommended approach to diversion mitigation

1. Keeping traffic on 520

2. Mitigating the effects of diversion off of 520

Principles:

- Focus on mitigation of 2010 diversion
- Mitigation related to level and type of diversion effects
- Focus on increment of tolling effects
- Focus on operational measures which are flexible in responding to actual and changing diversion effects
- Capital projects should be reserved for persistent diversion effects

Areas where data and input indicate there could be diversion effects

- 522, Bellevue/Points communities arterials, I-90, I-405 South, Seattle/University of Washington

Recommended mitigation actions

- **System-wide instrumentation and traffic monitoring**
- **522 traffic reporting, traffic signal reliability and coordination**
- **520 toll mitigation account**
- **Advanced traffic management technology on 520, I-90, I-405 & I-5**
- **Coordinated transit implementation plan**
- **Transit service expansion via Urban Partnership Agreement**
- **Transit related improvements such as park and ride expansion**
- **Timely expansion of alternate routes, including I-405**
- **Identify and secure funding for operating transit new transit service**



QUESTIONS?

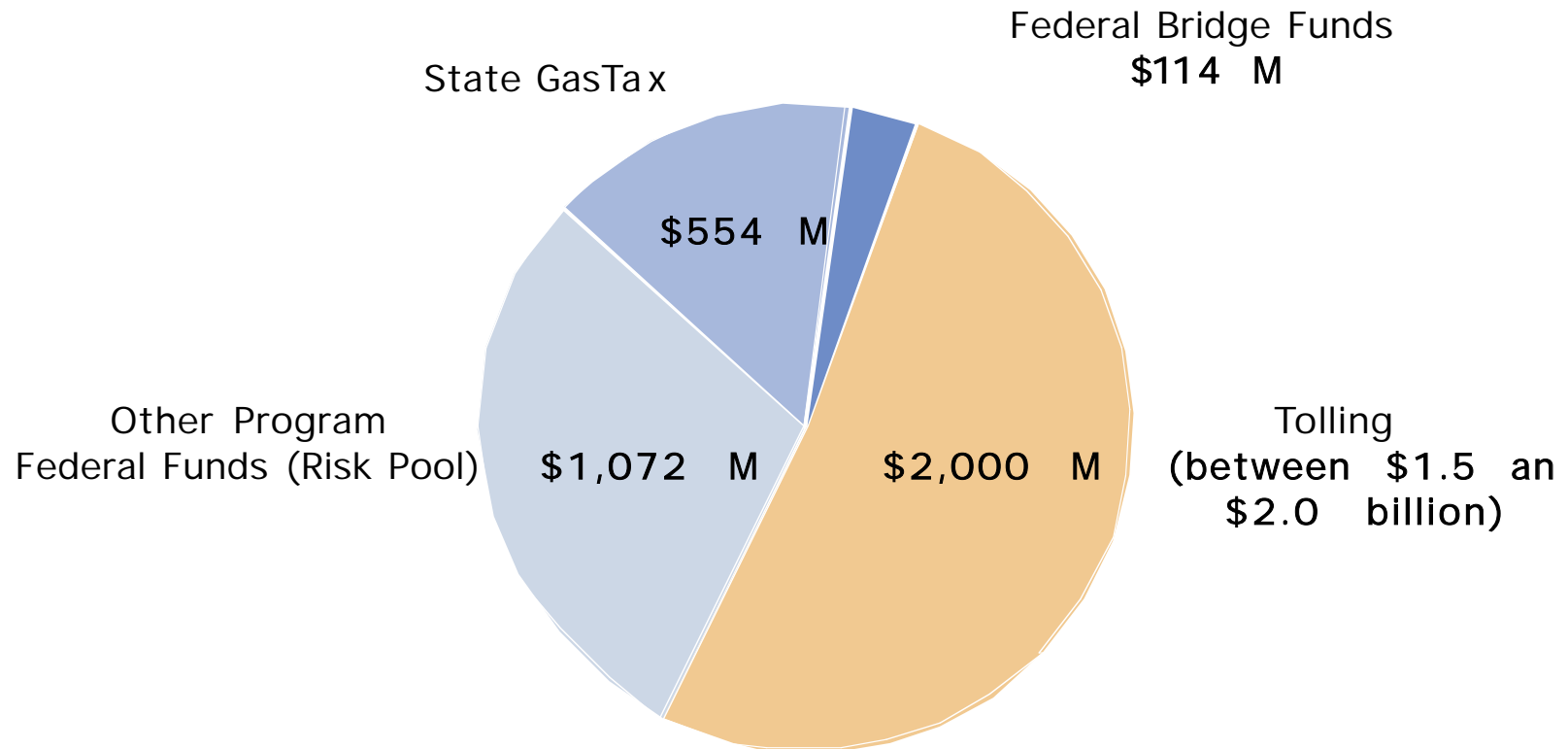


Back Up Slides

How will we pay for a new bridge?

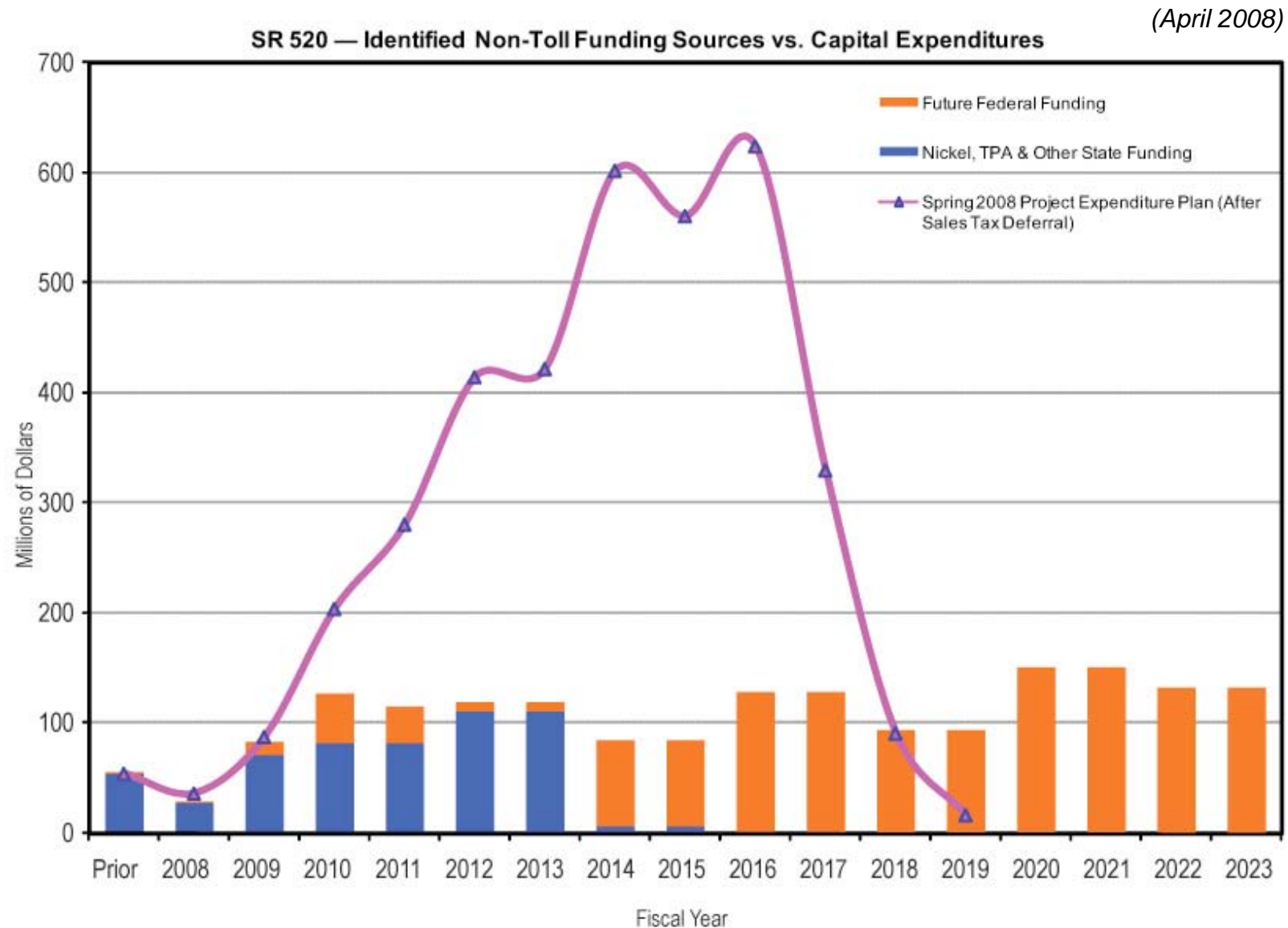
Funding sources identified by legislature in ESH

Project estimate: \$3.7 - 3.9 billion*



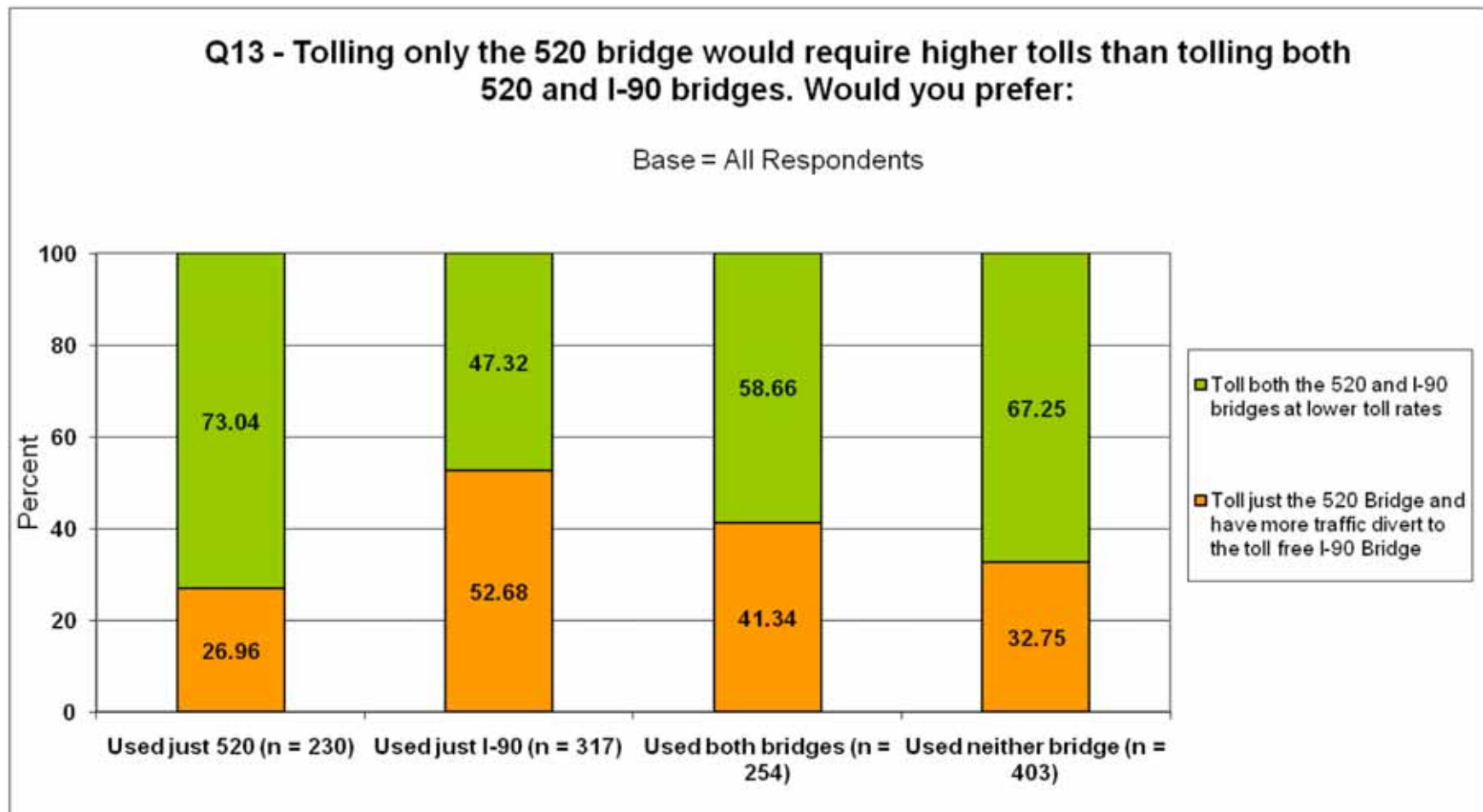
* Low end of range reflects \$180 million in sales tax deferral

Cash flow needs, compared to secured bridge funding



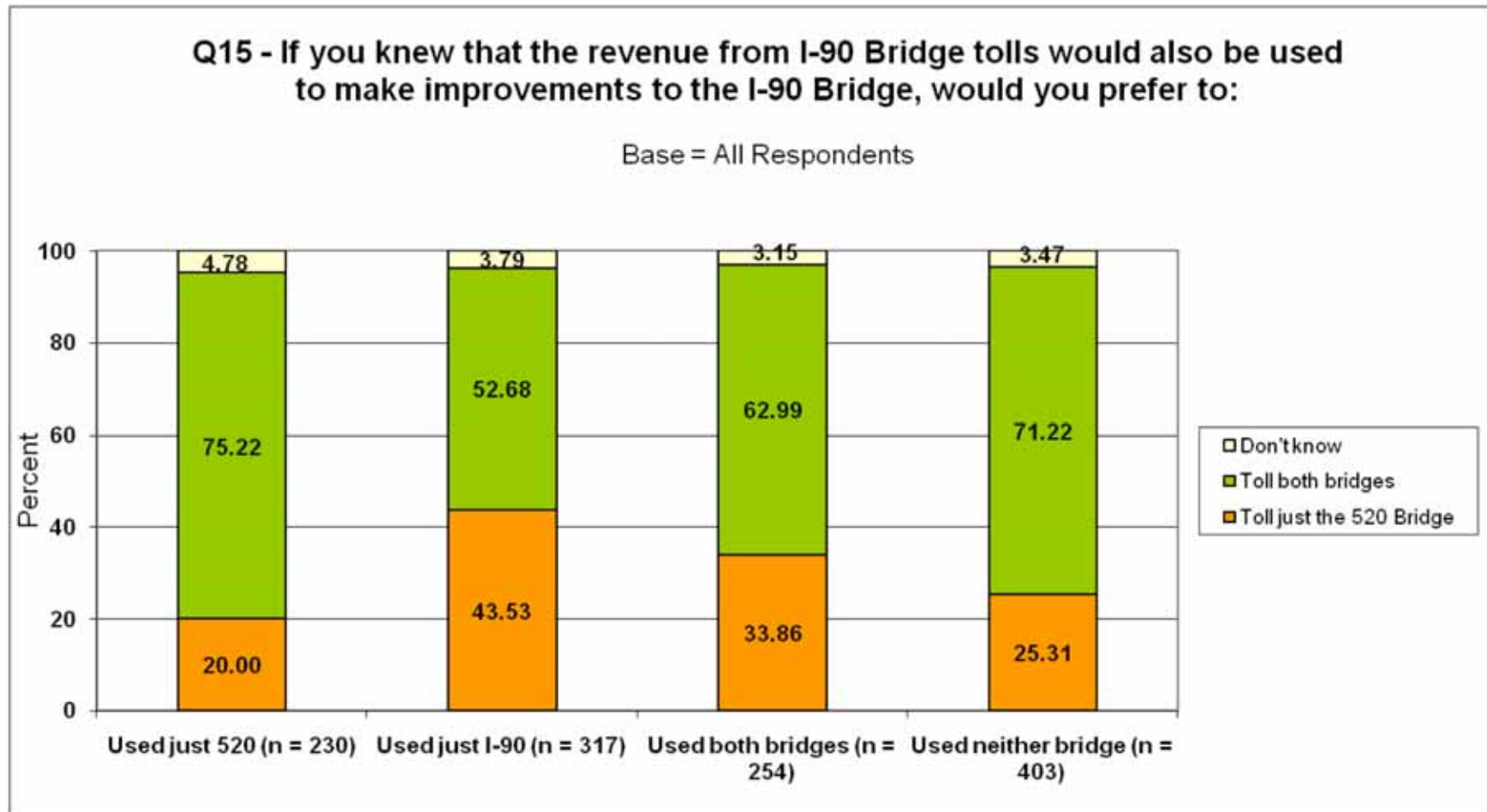
Key Findings from Phone Survey

Support for Tolling Both Bridges (except I-90 users) When Know That Tolling Both Bridges Results in Lower Tolls



Key Findings from Phone Survey

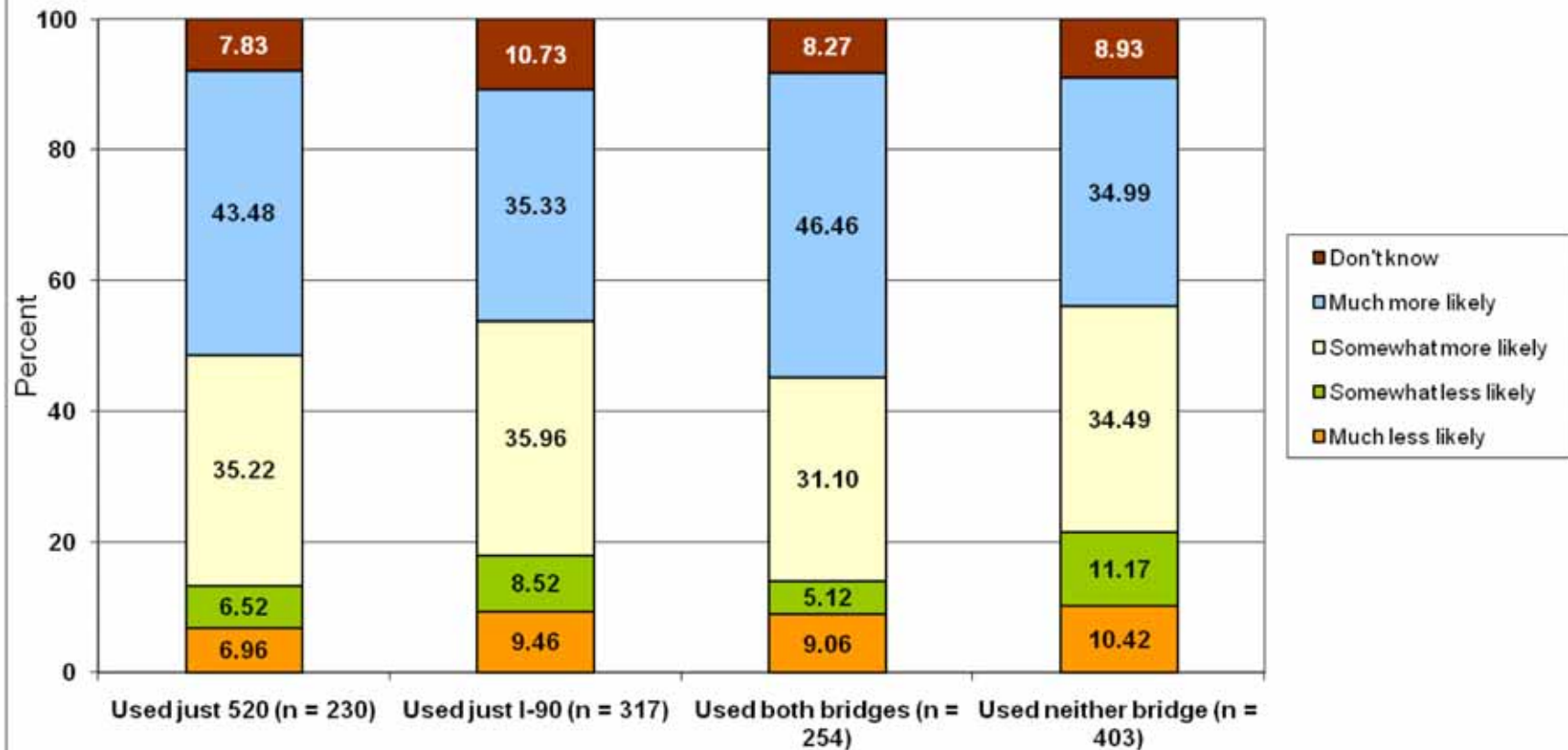
Support for Tolling Both Bridges Goes Up Among I-90 Users When They Know Improvements Will Be Made to I-90



Key Findings from Phone Survey

Support for Electronic Tolling

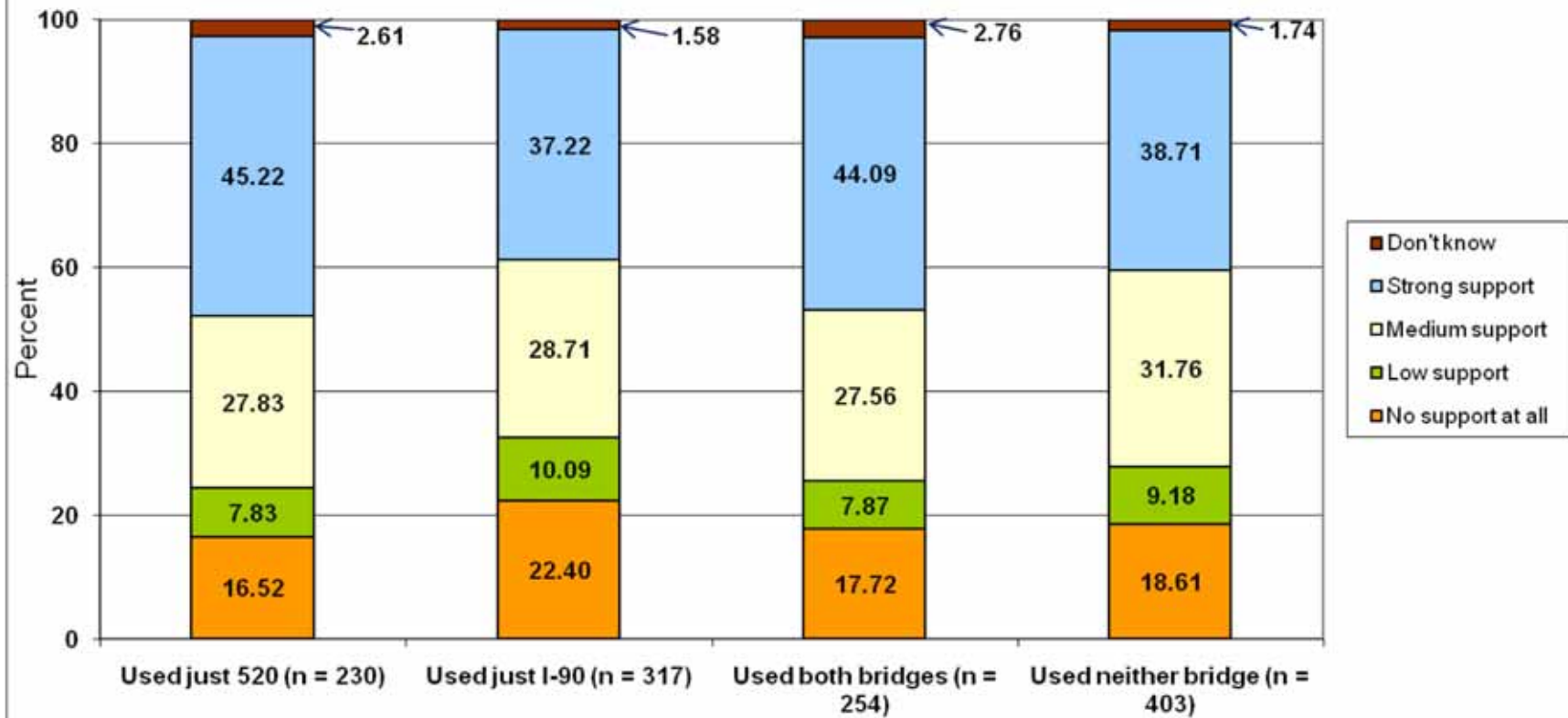
Q10 - Current technology allows tolls to be collected electronically as vehicles travel across the bridge at regular highway speeds. There will be no toll booths. Knowing this, does this make you more or less likely to support tolling of the 520 Bridge?



Key Findings from Phone Survey

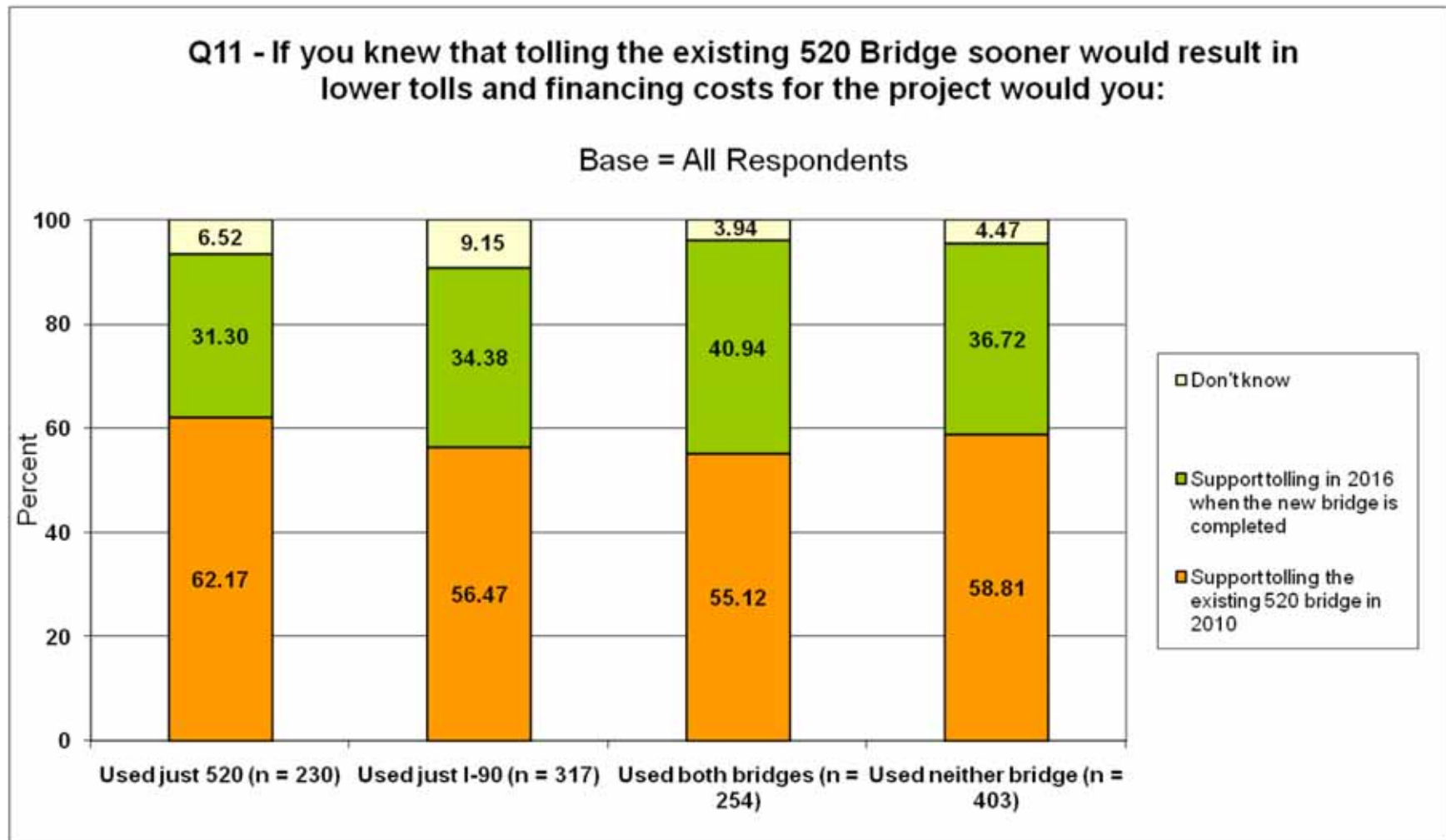
Support for Variable Rate Tolling

Q17 - Toll rates on the bridges may vary by time of day – higher during morning and evening commute times, lower during other times of the day to reduce peak commute period congestion. This is known as variable rate tolling. How much would you support t



Key Findings from Phone Survey

Support Early Tolling If Results in Lower Tolls and Financing Costs



Tolling Locations Evaluated

Single-Point toll on both existing and new 520 bridges

- Beginning in 2010 for Scenarios 2, 4, 6, 7, 9
- Beginning or continuing in 2016 for Scenarios 5, 7, 8, 9



Segment tolls on new 520 bridge

- Beginning in 2016 for Scenarios 1, 2, 3, 4, 6



Segment tolls on I-90

- Beginning in 2016 for Scenarios 3, 4



Single-Point toll on I-90

- Beginning in 2010 for Scenario 9
- Beginning in 2016 for Scenario 8



Many toll rates examined generally compare to those applied in 1963

520 – Historical Tolls Expressed in Current Dollars

Original 520 Evergreen Point Bridge Toll		One-way Toll, Current (2007) Dollars
Initial One-Way Toll in August 1963:	\$0.35	\$2.48
Final One-Way Toll in June 1979:	\$0.35	\$1.05

Note: Historical inflation based upon U.S. Consumer Price Index for all Urban Consumers